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L1	1	cyber adj coordinate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 15:53
L2	8	cyber with coordinate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 15:55
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L4	276	l3 with random$5	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 15:56
L5	1	l4 same bluetooth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 16:51
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L7	1	l5 and random	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 16:50
L8	16334	l4and bluetooth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 16:51
L9	20	l4 and bluetooth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 16:59

L10	6	l3 same "frequency hopping"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 17:13
L11	1212	hopping adj sequence	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 17:14
L12	176	l11 with (seed or random)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 17:14
L13	1	l12 with function	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 17:14
L14	10	l12 same function	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 17:17
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L17	37	seed near5 randomizing	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 17:21
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L19	150	seed with randomizing	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/04 17:21

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1 **Capacity evaluation of frequency hopping based ad-hoc systems** ■

Apurva Kumar, Rajeev Gupta

June 2001 **ACM SIGMETRICS Performance Evaluation Review , Proceedings of the 2001 ACM SIGMETRICS international conference on Measurement and modeling of computer systems**, Volume 29 Issue 1

Full text available: 📄 pdf(979.91 KB)   Additional Information: full citation, abstract, references, citings

The IEEE 802.15 Wireless Personal Area Networks (WPAN) study group has been working on evolving a standard for short-range wireless connectivity between low complexity and low power devices operating within the personal operating space (POS). The scenarios envisioned for WPANs are likely to involve a large number of POSs operating in an indoor environment. Among short-range wireless technologies, Bluetooth™ [1] based ad-hoc connectivity comes closest to satisfying the WPAN requirements ...

Keywords: GFSK, ad-hoc networks, bit error rate, bluetooth technology, capacity, forward error correction, frequency hopping, throughput

2 **Special issue on wireless pan & sensor networks: A novel scheme to interconnect** ▬

multiple frequency hopping channels into an ad hoc network

György Miklós, Ferenc Kubinszky, András Rácz, Zoltán Turányi, András Valkó, Miklós Aurél Rónai, Sándor Molnár

January 2004 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 8 Issue 1

Full text available: 📄 pdf(278.69 KB)   Additional Information: full citation, abstract, references

Frequency hopping radios have very attractive features to be used as PAN links, but their use in ad hoc networking is problematic because of the difficulty to synchronize the channels and coordinate transmission attempts. We propose a novel mechanism to interconnect multiple frequency hopping channels into an ad hoc network based on an adapted version of CSMA/CA. The performance of the proposal is investigated using analytical and simulation tools. By using multiple channels, we achieve signific ...

3 **Channelization: Frequency rolling: a cooperative frequency hopping for mutually** ▬

interfering wpans

Petar Popovski, Hiroyuki Yomo, Sebastien Aprili

May 2004 **Proceedings of the 5th ACM international symposium on Mobile ad hoc networking and computing**

Full text available: 📄 pdf(233.35 KB)   Additional Information: full citation, abstract, references, index terms

A Wireless Personal Area Network (WPAN) provides wireless links among proximate devices,usually carried by an individual.As WPAN gains momentum in ubiquitous usage, the

interference that collocated WPANs cause to each other, termed self-interference, becomes one of the major sources that degrade the communication performance of WPAN. This paper in roduces the Frequency Rolling (FR), a particular instance of frequency hopping (FH) that enables he collocated WPANs to cooperate and avoid the self-i ...

Keywords: coexistence, frequency hopping, unlicensed spectrum, wireless personal area network (WPAN)

4 Bluetooth dynamic scheduling and interference mitigation
N. Golmie
February 2004 **Mobile Networks and Applications**, Volume 9 Issue 1

Full text available: 📄 pdf(194.60 KB)   Additional Information: full citation, abstract, references, index terms, review

Bluetooth is a cable replacement technology for Wireless Personal Area Networks. It is designed to support a wide variety of applications such as voice, streamed audio and video, web browsing, printing, and file sharing, each imposing a number of quality of service constraints including packet loss, latency, delay variation, and throughput. In addition to QOS support, another challenge for Bluetooth stems from having to share the 2.4 GHz ISM band with other wireless devices such as IEEE 802.11. ...

Keywords: Bluetooth, MAC scheduling, WPANs, interference

5 BlueStar: enabling efficient integration between bluetooth WPANs and IEEE 802.11 WLANs
Carlos De M. Cordeiro, Sachin Abhyankar, Rishi Toshiwal, Dharma P. Agrawal
August 2004 **Mobile Networks and Applications**, Volume 9 Issue 4

Full text available: 📄 pdf(672.02 KB)   Additional Information: full citation, abstract, references, index terms

Bluetooth is a radio technology for Wireless Personal Area Networking (WPAN) operating in the 2.4 GHz ISM frequency band. So far, there has been little research on how Bluetooth-enabled devices can effectively and efficiently have uninterrupted access to wide area networks (WAN) such as the Internet. We introduce a novel architecture (BlueStar) whereby selected Bluetooth devices, called Bluetooth Wireless Gateways (BWGs), are also IEEE 802.11 enabled so that these BWGs could serve as egress/ingr ...

Keywords: IEEE 802.11, analytical modeling, architecture, bluetooth, carrier sensing, frequency hopping, gateway, interference, protocol stack, simulation

6 Rendezvous layer protocols for Bluetooth-enabled smart devices
Frank Siegemund, Michael Rohs
July 2003 **Personal and Ubiquitous Computing**, Volume 7 Issue 2

Full text available: 📄 pdf(445.27 KB)   Additional Information: full citation, abstract, index terms

AbstractCommunication platforms for ubiquitous computing need to be flexible, self-organizing, highly scalable and energy efficient, because in the envisioned scenarios a large number of autonomous entities communicate in potentially unpredictable ways. Short-range wireless technologies form the basis of such communication platforms. In this paper we investigate device discovery in Bluetooth, a candidate wireless technology for ubiquitous computing. Detecting new devices accounts for a significa ...

Keywords: Adaptive rendezvous protocols, Bluetooth, Context, Cooperative device discovery, Energy efficiency, Inquiry parameters, Rendezvous layer

7 Interference of bluetooth and IEEE 802.11: simulation modeling and performance

evaluation
N. Golmie, R. E. Van Dyck, A. Soltanian
July 2001 **Proceedings of the 4th ACM international workshop on Modeling, analysis and simulation of wireless and mobile systems**

Full text available: pdf(657.91 KB)   Additional Information: full citation, abstract, references, citings, index terms

The emergence of several radio technologies such as Bluetooth, and IEEE 802.11 operating in the 2.4 GHz unlicensed ISM frequency band may lead to signal interference and result in significant performance degradation when devices are co-located in the same environment. The main goal of this paper is to present a simulation environment for modeling interference based on detailed MAC and PHY models. This framework is then used to evaluate the impact of interference on the performance of Bluetoot ...

Keywords: IEEE 802.11, WPANs, bluetooth, interference

8 Interference evaluation of Bluetooth and IEEE 802.11b systems
N. Golmie, R. E. Van Dyck, A. Soltanian, A. Tonnerre, O. Rébala
May 2003 **Wireless Networks**, Volume 9 Issue 3

Full text available: pdf(203.73 KB)   Additional Information: full citation, abstract, references, index terms

The emergence of several radio technologies, such as Bluetooth and IEEE 802.11, operating in the 2.4 GHz unlicensed ISM frequency band, may lead to signal interference and result in significant performance degradation when devices are colocated in the same environment. The main goal of this paper is to evaluate the effect of mutual interference on the performance of Bluetooth and IEEE 802.11b systems. We develop a simulation framework for modeling interference based on detailed MAC and PHY model ...

Keywords: Bluetooth, IEEE 802.11b, WPANs, interference

9 Multimedia support over bluetooth Piconets
Rohit Kapoor, Manthos Kazantzidis, Mario Gerla, Per Johansson
July 2001 **Proceedings of the first workshop on Wireless mobile internet**

Full text available: pdf(808.15 KB)   Additional Information: full citation, abstract, references, citings, index terms

In this paper we explore the ability to support multimedia traffic in indoor, wireless ad hoc PANs (Personal Area Networks) using the Bluetooth technology. We first define the representative ad hoc networking applications such as wireless access to the Internet, document distribution, videoconferencing, webcasting, interaction with sensors and actuators, etc. For such applications, we define the performance requirements placed on the PAN. There are two technologies now competing for the ...

Keywords: Piconets, WaveLAN, bluetooth, multimedia, video, voice

10 A new Bluetooth scatternet formation protocol
Ching Law, Amar K. Mehta, Kai-Yeung Siu
October 2003 **Mobile Networks and Applications**, Volume 8 Issue 5

Full text available: pdf(331.90 KB)   Additional Information: full citation, abstract, references, citings, index terms

A Bluetooth ad hoc network can be formed by interconnecting piconets into scatternets. The constraints and properties of Bluetooth scatternets present special challenges in forming an ad hoc network efficiently. In this paper, we present and analyze a new randomized distributed protocol for Bluetooth scatternet formation. We prove that our protocol achieves $O(\log n)$ time complexity and $O(n)$ message complexity. The scatternets formed by our protocol have the following propert ...

11 Bluetooth: A pseudo random coordinated scheduling algorithm for Bluetooth scatternets

András Rácz, György Miklós, Ferenc Kubinszky, Andrés Valkó

October 2001 **Proceedings of the 2nd ACM international symposium on Mobile ad hoc networking & computing**

Full text available: 📄 pdf(218.47 KB)   Additional Information: full citation, abstract, references, citings, index terms

The emergence of Bluetooth as a default radio interface allows handheld devices to be rapidly interconnected into ad hoc networks. Bluetooth allows large numbers of piconets to form a scatternet using designated nodes that participate in multiple piconets. A unit that participates in multiple piconets can serve as a bridge and forwards traffic between neighbouring piconets. Since a Bluetooth unit can transmit or receive in only one piconet at a time, a bridging unit has to share its time among t ...

Keywords: Bluetooth, inter-piconet communication, scatternet, scheduling

12 A bluetooth based sensor network for civil infrastructure health monitoring

Vipin Mehta, Magda El Zarki

July 2004 **Wireless Networks**, Volume 10 Issue 4

Full text available: 📄 pdf(307.57 KB)   Additional Information: full citation, abstract, references, index terms

Communicating with sensors has long been limited either to wired connections or to proprietary wireless communication protocols. Using a ubiquitous and inexpensive wireless communication technology to create Sensor Area Networks (SANs) will accelerate the extensive deployment of sensor technology. Bluetooth, an emerging, worldwide standard for inexpensive, local wireless communication is a viable choice for SANs because of its inherent support for some of the important requirements-low power, sm ...

Keywords: bluetooth, link strength, load balancing, power consumption, scatternet, scheduling, simulated annealing, timing accuracy, topology design

13 dBBlue: low diameter and self-routing bluetooth scatternet

Wen-Zhan Song, Xiang-Yang Li, Yu Wang, Weizhao Wang

September 2003 **Proceedings of the 2003 joint workshop on Foundations of mobile computing**

Full text available: 📄 pdf(180.13 KB)   Additional Information: full citation, abstract, references, index terms

This paper addresses the problem of scatternet formation for single-hop Bluetooth based ad hoc networks, with minimal communication overhead. We adopt the well-known structure *de Bruijn graph* to form the backbone of Bluetooth scatternet, hereafter called *dBBlue*, such that every master node has at most seven slaves, every slave node is in at most two piconets, and no node assumes both master and slave roles. Our structure *dBBlue* also enjoys a nice routing property: the diamet ...

Keywords: bluetooth networks, de Bruijn graph, low diameter, scalable MAC assignment, scatternet formation, self-routing, single-hop

14 Multimedia over Wireless and Mobile Networks: A scheduling algorithm for transporting variable rate coded voice in bluetooth networks

Honghai Zhang, Jennifer C. Hou

September 2002 **Proceedings of the 5th ACM international workshop on Wireless mobile**

multimedia

Full text available: 📄 pdf(219.23 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>

In the current Bluetooth specification voice traffic is transmitted using synchronous connection-oriented (SCO) links. Only uncompressed voice connections with Pulse Code Modulation (PCM) are supported, and 64Kbps bandwidth is assigned to each voice connection. However, with the use of speech coding techniques that produce compressed voice and/or detect silent periods, it is expected that high quality voice data can be transmitted at or below 4Kbps, and that the Bluetooth specification will supp ...

Keywords: Bluetooth, realtime, scheduling, voice

15 <u>Low-power considerations in the design of bluetooth (invited talk)</u>

Sven Mattisson

August 2000 **Proceedings of the 2000 international symposium on Low power electronics and design**

Full text available: 📄 pdf(160.17 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>

In this paper, we review the Bluetooth technology, a new universal radio interface enabling electronic devices to connect and communicate wirelessly via short-range connections. Motivations for the radio requirements are given, and the implications of system parameters like operating modes, frequency hopping, interference resistance are discussed from a low-power perspective. Specific characteristics enabling low-cost single-chip implementations and supporting low power consumption are outl ...

16 <u>Poster session: Proximity awareness and fast connection establishment in Bluetooth</u>

Theodoros Salonidis, Pravin Bhagwat, Leandros Tassiulas

November 2000 **Proceedings of the 1st ACM international symposium on Mobile ad hoc networking & computing**

Full text available: 📄 pdf(183.93 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>citings</u>

Proximity awareness in Bluetooth technology is implemented via an asymmetric point to point "sender-receiver" protocol where "senders" are trying to discover "receivers" in the vicinity. This paper tries to shed some light on the link formation delay by first identifying the delay bottlenecks in the asymmetric neighborhood discovery process and then discussing the factors that affect certain parameter decisions. A symmetric technique for establishing ad hoc connectivity is introduced which impos ...

17 <u>BlueMesh: degree-constrained multi-hop scatternet formation for Bluetooth networks</u>

Chiara Petrioli, Stefano Basagni, Imrich Chlamtac

February 2004 **Mobile Networks and Applications**, Volume 9 Issue 1

Full text available: 📄 pdf(260.43 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>

In this paper we describe *BlueMesh*, a new protocol for the establishment of *scatternets*, i.e., multi-hop wireless networks of Bluetooth devices. BlueMesh defines rules for device discovery, piconet formation and piconet interconnection so to generate connected scatternets with the following desirable properties. BlueMesh forms scatternets without requiring the Bluetooth devices to be all in each other transmission range. BlueMesh scatternet topologies are meshes with multiple paths ...

Keywords: Bluetooth technology, ad hoc networks, scatternet formation

18 <u>An empirical study of Bluetooth performance</u>

Guillermo A. Francia, Aditya Kilaru, Le Phuong, Mehul Vashi

April 2004 **Proceedings of the 2nd annual conference on Mid-south college computing**

Full text available: 📄 pdf(246.17 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>

The Bluetooth technology was developed with the ultimate goal of replacing the

conventional networking cable between devices. Since its inception in 1998, it has rapidly developed and adopted by influential technology innovators and prominent corporations. Most notable deployment of Bluetooth technology can be found in printers, digital cameras, cell phones, and computers of various types. The purpose of this work is to perform an empirical study of the performance of Bluetooth enabled networks. ...

19 Emerging technologies: WLANs and WPANs: On the application of traffic engineering over bluetooth ad hoc networks
Sachin Abhyankar, Rishi Toshiwal, Carlos Cordeiro, Dharma Agrawal
September 2003 **Proceedings of the 6th ACM international workshop on Modeling analysis and simulation of wireless and mobile systems**
Full text available: pdf(420.12 KB)   Additional Information: full citation, abstract, references, index terms

The seamless communication of data and voice over short-range, point-to-multipoint wireless links between mobile and/or stationary devices is becoming a reality by newly introduced Bluetooth radio technology for Wireless Personal Area Networking, which can support only up to 1 Mbps of nominal bandwidth. It is based on a master-slave model where double the resources are allocated for any slave-to-slave communication via the master. In addition, it does not have any mechanism to serve demands exce ...

Keywords: bluetooth, performance evaluation, piconet partitioning, role switching, traffic engineering

20 Bluetooth: Performance of a new Bluetooth scatternet formation protocol
Ching Law, Amar K. Mehta, Kai-Yeung Siu
October 2001 **Proceedings of the 2nd ACM international symposium on Mobile ad hoc networking & computing**
Full text available: pdf(1.50 MB)   Additional Information: full citation, abstract, references, citings, index terms

A Bluetooth ad hoc network can be formed by interconnecting piconets into scatternets. The constraints and properties of Bluetooth scatternets present special challegnes in forming an ad hoc network efficiently. In this paper, we evaluate the performance of a new randomized distributed Bluetooth scatternet formation protocol. Our simulations validate the theoretical results that our scatternet formation protocol runs in $O(\log n)$ time and sends $O(n)$ messages. The scatt ...

Keywords: Bluetooth, ad hoc networks, resource discovery, topology construction

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21 A fair and traffic dependent scheduling algorithm for Bluetooth scatternets   ■
Rohit Kapoor, Andrea Zanella, Mario Gerla
February 2004 **Mobile Networks and Applications**, Volume 9 Issue 1

Full text available: 📄 pdf(364.22 KB)   Additional Information: full citation, abstract, references, index terms

The Bluetooth specification defines the notion of interconnected piconets, called scatternets, but does not define the actual mechanisms and algorithms necessary to set up and maintain them. The operation of a scatternet requires some Bluetooth units to be interpiconet units (gateways), which need to time-division multiplex their presence among their piconets. This requires a scatternet-scheduling algorithm that can schedule the presence of these units in an efficient manner. In this paper, we p ...

Keywords: Bluetooth, fairness, scatternet, scheduling

22 Papers from MC²R open call: Inquiry packet interference in bluetooth scatternets   ▩
Brian S. Peterson, Rusty O. Baldwin, Richard A. Raines
April 2004 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 8 Issue 2

Full text available: 📄 pdf(322.94 KB)   Additional Information: full citation, abstract, references

The key to successfully establishing and maintaining a Bluetooth scatternet is the inquiry procedure which discovers Bluetooth devices within range. The inquiry procedure uses a subset of the hop frequencies used by a piconet. While nodes in a scatternet are in the inquiry substate, they can cause significant interference to the neighboring piconets. Nodes seeking to join a piconet cause significant interference to those neighboring piconets attempting normal communication in the connection mode ...

23 An ns-based Bluetooth Topology Construction Simulation Environment   ■
Chia-Jui Hsu, Yuh-Jzer Joung
March 2003 **Proceedings of the 36th annual symposium on Simulation**

Full text available: 📄 pdf(470.02 KB)
                  📄 Publisher Site
                                          Additional Information: full citation, abstract, index terms

Bluetooth is an emerging technology in wireless applications,and many related issues are yet to be explored bothin academia and industry. Because of the complexity andthe dynamics of computer networks, a good simulation toolplays an important role in the development stage. Of the existingsimulation tools, ns is a popular, open-source packagethat has a substantial support for simulation of TCP,routing, and multicast protocols over wired and wirelessnetworks. It also has BlueHoc as its extension f ...

24 <u>Communication technology I - coding and wireless: Wireless technologies for data acquisition systems</u>
Sakari Junnila, Jarkko Niittylahti
September 2003 **Proceedings of the 1st international symposium on Information and communication technologies**
Full text available: pdf(44.08 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>

This paper surveys currently available wireless technologies and considers their suitability for a six channel medical (BCG/ECG) measurement system. The main requirements for the wireless technology suitable for this application are capability to transmit data stream up to 60 kbps, low-power consumption, and low-interference to and from other devices.

Keywords: data acquisition, medical engineering, wireless technologies

25 <u>Platforms: Bluetooth and sensor networks: a reality check</u>
Martin Leopold, Mads Bondo Dydensborg, Philippe Bonnet
November 2003 **Proceedings of the 1st international conference on Embedded networked sensor systems**
Full text available: pdf(356.11 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>citings</u>, <u>index terms</u>

The current generation of sensor nodes rely on commodity components. The choice of the radio is particularly important as it impacts not only energy consumption but also software design (e.g., network self-assembly, multihop routing and in-network processing). Bluetooth is one of the most popular commodity radios for wireless devices. As a representative of the frequency hopping spread spectrum radios, it is a natural alternative to broadcast radios in the context of sensor networks. The questio ...

Keywords: bluetooth, mac layer, network self-assembly, sensor nodes

26 <u>Applications and OS: Smart-tag based data dissemination</u>
Allan Beaufour, Martin Leopold, Philippe Bonnet
September 2002 **Proceedings of the 1st ACM international workshop on Wireless sensor networks and applications**
Full text available: pdf(230.05 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>citings</u>, <u>index terms</u>

Monitoring wide, hostile areas requires disseminating data between fixed, disconnected clusters of sensor nodes. It is not always possible to install long-range radios in order to cover the whole area. We propose to leverage the movement of mobile individuals, equipped with smart-tags, to disseminate data across disconnected static nodes spread across a wide area. Static nodes and mobile smart-tags exchange data when they are in the vicinity of each other; smart-tags disseminate data as they mov ...

Keywords: bluetooth, epidemic replication, smart-tags

27 <u>Bluetooth: JUMP mode---a dynamic window-based scheduling framework for Bluetooth scatternets</u>
Niklas Johansson, Fredrik Alriksson, Ulf Jönsson
October 2001 **Proceedings of the 2nd ACM international symposium on Mobile ad hoc networking & computing**
Full text available: pdf(396.38 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>citings</u>, <u>index terms</u>

The emerging Bluetooth technology enables devices to be wirelessly connected in an ad hoc fashion. Using Bluetooth, devices are organized into small piconets, which in turn may be inter-connected to form larger networks called scatternets. In a scatternet, some of the devices participate in more than one piconet. These nodes are called PMP (Participant in

Multiple Piconets) nodes. Since a Bluetooth unit only hence one transceiver, it may only be active in one piconet at any given instant and han ...

Keywords: Bluetooth, ad hoc networks, scatternet, scheduling

28 Performance of Bluetooth bridges in scatternets with limited service scheduling
Vojislav B. Mišic´, Jelena Mišic´
February 2004 **Mobile Networks and Applications**, Volume 9 Issue 1

Full text available: pdf(552.34 KB)   Additional Information: full citation, abstract, references, index terms

The performance of two Bluetooth piconets linked through a bridge device is analyzed using the tools of queueing theory. We analyze both possible cases, i.e., when the bridge device is the master in one of the piconets and a slave in the other (MS bridge), as well as when the bridge device is the slave in both of the piconets (SS bridge). Analytical results are derived for the probability distribution of access delay (i.e., the time that a packet has to wait before being serviced) and end-to-end ...

Keywords: Bluetooth, Bluetooth scatternet, master/slave bridge, performance evaluation, queueing theory, slave/slave bridge

29 Emerging design and tool challenges in RF and wireless applications: RF front end application and technology trends
Pieter W. Hooijmans
June 2003 **Proceedings of the 40th conference on Design automation**

Full text available: pdf(151.37 KB)   Additional Information: full citation, abstract, index terms

In this paper we discuss the many issues around the system and circuit design of advanced RF front ends for mobile, wireless and consumer RF applications. After an analysis of the application trends, technology choices linked to the different system solutions will be discussed.

Keywords: BiCMOS, RF, RF-CMOS, SoC, front ends, integration technology, receivers, system design, transmitters

30 A novel scatternet scheme with IPv6 compatibility
Wei Kuang Lai, Der Hwa Tan
December 2003 **Mobile Networks and Applications**, Volume 8 Issue 6

Full text available: pdf(488.86 KB)   Additional Information: full citation, abstract, references, index terms

Some market analysts predict that there will be some 1.4 billion Bluetooth devices in operation by the year 2005 [8]. However, the current specification 1.1 does not describe the algorithms or mechanisms to create a scatternet due to a variety of unsolved issues [3,12]. Since the upper layers are not defined in Bluetooth, it is not possible to implement the scatternet in current specification. Hence in this research, we need make some modifications to Bluetooth protocol in order to support the t ...

Keywords: Bluetooth, IP, multicast, piconet, scatternet

31 Capacity assignment in Bluetooth scatternets: optimal and heuristic algorithms
Gil Zussman, Adrian Segall
February 2004 **Mobile Networks and Applications**, Volume 9 Issue 1

Full text available: pdf(226.24 KB)   Additional Information: full citation, abstract, references, index terms

Bluetooth enables portable electronic devices to communicate wirelessly via short-range ad-hoc networks. Initially Bluetooth will be used as a replacement for point-to-(multi)point

cables. However, in due course, there will be a need for forming multihop ad-hoc networks over Bluetooth, referred to as scatternets. This paper investigates the capacity assignment problem in Bluetooth scatternets. The problem arises primarily from the special characteristics of the network and its solution requires ...

Keywords: Bluetooth, capacity assignment, personal area networks (PAN), scatternet, scheduling

32 Mobile applications: Bluetooth and WAP push based location-aware mobile advertising system
Lauri Aalto, Nicklas Göthlin, Jani Korhonen, Timo Ojala
June 2004 **Proceedings of the 2nd international conference on Mobile systems, applications, and services**
Full text available: pdf(469.83 KB)   Additional Information: full citation, abstract, references, index terms

Advertising on mobile devices has large potential due to the very personal and intimate nature of the devices and high targeting possibilities. We introduce a novel B-MAD system for delivering permission-based location-aware mobile advertisements to mobile phones using Bluetooth positioning and Wireless Application Protocol (WAP) Push. We present a thorough quantitative evaluation of the system in a laboratory environment and qualitative user evaluation in form of a field trial in the real envir ...

Keywords: Bluetooth positioning, context-aware, location-aware, location-based services, mobile advertising, wireless advertising

33 Report on the WINLAB/Berkeley FOCUS'99 on "Radio Networks for Everything"
Chris Rose, Andy Ogielski, Gary Kelson
July 1999 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 3 Issue 3
Full text available: pdf(287.62 KB)   Additional Information: full citation, index terms

34 Technical opinion: Current and future applications of mobile and wireless networks
Rajeswari Malladi, Dharma P. Agrawal
October 2002 **Communications of the ACM**, Volume 45 Issue 10
Full text available: pdf(80.48 KB) Additional Information: full citation, abstract, references, citings, index
html(28.29 KB)   terms
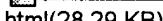
Wireless and mobile networks are being used in diverse areas such as travel, education, stock trading, military, package delivery, disaster recovery, and medical emergency care.

35 Embedded computation meets the World Wide Web
Gaetano Borriello, Roy Want
May 2000 **Communications of the ACM**, Volume 43 Issue 5
Full text available: pdf(456.09 KB)
html(41.58 KB)   Additional Information: full citation, references, citings, index terms
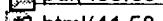
36 Session 9: Design techniques for low power high bandwidth upconversion in CMOS
Carl De Ranter, Michiel Steyaert
August 2002 **Proceedings of the 2002 international symposium on Low power electronics and design**
Full text available: pdf(285.03 KB)   Additional Information: full citation, abstract, references, index terms

An upconvertor topology for low power, high bandwidth applications is presented. Using specific circuit techniques and local circuit-level optimization, the power consumption of the

total system comprising an on-chip LC-type VCO, a polyphase network quadrature generator, a linear mixer block and an RF-current buffer, has been minimized.A chip has been designed and manufactured in a 0.25&mgr;m CMOS technology. The VCO oscillates between 1.68 GHz and 2 GHz. Driven by an external LO, the transmitte ...

Keywords: CMOS, RF design, analog, low power, oscillators, upconversion

37 <u>A unified framework for resource discovery and QoS-aware provider selection in ad hoc networks</u>
Jiangchuan Liu, Qian Zhang, Bo Li, Wenwu Zhu, Jun Zhang
January 2002 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 6 Issue 1

Full text available: <u>pdf(791.60 KB)</u>   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>citings</u>, <u>index terms</u>

With the rising popularity of network-based applications and the potential use of mobile ad hoc networks in civilian life, an efficient resource discovery service is needed in such networks for quickly locating resource providers. In addition, to improve user experience, QoS awareness is also crucial. In this paper, we identify the challenges when basic resource discovery techniques for the Internet are used in mobile ad hoc networks. We then propose a framework that provides a unified solution ...

38 <u>Wireless home networks: Introduction to the special feature on wireless home networks</u>
Theodore B. Zahariadis, Apostolis K. Salkintzis
April 2003 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 7 Issue 2
Full text available: <u>pdf(246.58 KB)</u>   Additional Information: <u>full citation</u>, <u>references</u>

39 <u>Advancements in 3D interactive devices for virtual environments</u>
D. Wormell, E. Foxlin
May 2003 **Proceedings of the workshop on Virtual environments 2003**

Full text available: <u>pdf(24.13 MB)</u>   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>

New commercially available interactive 3D tracking devices and systems for use in virtual environments are discussed. InterSense originally introduced the IS-900 scalable-area hybrid tracking system for virtual environments in 1999. In response to customer requests, we have almost completely revamped the system over the past two years. The major changes include a drastic 3-fold reduction in the size and weight of the wearable sensor devices, introduction of wireless tracking capability, a standa ...

Keywords: I^2C Bus, inertial tracking, motion tracking, tracking in virtual environments, wireless tracking

40 <u>Wireless home networks: A review on wireless home network technologies</u>
K. Vaxevanakis, Th. Zahariadis, N. Vogiatzis
April 2003 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 7 Issue 2
Full text available: <u>pdf(1.63 MB)</u>   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>

Connecting residences to broadband access networks offers an unprecedented opportunity to extend the networking customer base beyond the satiated corporate environment. Yet despite this promising prospect, the market is evolving very tenuously: on one hand, there are numerous industrial consortia and standardization bodies that continue their work on independent and often non-interoperable specifications for residential networks; on the other hand, while there are multiple home PCs and multimedi ...

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Terms used **frequency** **hopping** **bluetooth**   Found **58** of **151,219**

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Relevance scale ☐➖➖◼◼

41 A report on the IEEE 802 plenary meeting Kauai, HI, USA   ➖
Victor Bahl
January 2000 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 4 Issue 1
Full text available: 📄 pdf(842.71 KB)   Additional Information: full citation, index terms

42 New products   ➖
Linux Journal Staff
November 2002 **Linux Journal**, Volume 2002 Issue 103
Full text available: 🌐 html(7.04 KB)   Additional Information: full citation, index terms

43 Quality-of-service in IP services over Bluetooth ad-hoc networks   ➖
Wah-Chun Chan, Jiann-Liang Chen, Po-Tsang Lin, Ka-Chin Yen
December 2003 **Mobile Networks and Applications**, Volume 8 Issue 6
Full text available: 📄 pdf(469.36 KB)   Additional Information: full citation, abstract, references, index terms

Along with the development of multimedia and wireless networking technologies, mobile multimedia applications are playing more important roles in information access. Quality of Service (QoS) is a critical issue in providing guaranteed service in a low bandwidth wireless environment. To provide Bluetooth-IP services with differentiated quality requirements, a QoS-centric cascading mechanism is proposed in this paper. This innovative mechanism, composed of intra-piconet resource allo ...

Keywords: BNEP protocol, Bluetooth-IP access system, handoff, quality of service, resource allocation

44 Considering wireless LANs: proceed with caution   ➖
Gilbert Held
July 2001 **International Journal of Network Management**, Volume 11 Issue 4
Full text available: 📄 pdf(27.49 KB) Additional Information: full citation, index terms

45   ➖
Comparative performance evaluation of scatternet formation protocols for networks of bluetooth devices

Stefano Basagni, Raffaele Bruno, Gabriele Mambrini, Chiara Petrioli
March 2004 **Wireless Networks**, Volume 10 Issue 2

Full text available: pdf(375.40 KB)   Additional Information: full citation, abstract, references, index terms,
review

This paper describes the results of the first ns2-based comparative performance evaluation
among four major solutions presented in the literature for forming multi-hop networks of
Bluetooth devices (*scatternet formation*). The four protocols considered in this paper are
BlueTrees [1], *BlueStars* [2], *BlueNet* [3] and the protocol presented in [4] which proposes
geometric techniques for topology reduction combined with cluster-based scatternet
formation. We implemented th ...

Keywords: bluetooth, performance evaluation, scatternet formation, wireless networks

46 Security, testbeds and applications: The quest for security in mobile ad hoc networks
Jean-Pierre Hubaux, Levente Buttyán, Srdan Capkun
October 2001 **Proceedings of the 2nd ACM international symposium on Mobile ad hoc
networking & computing**

Full text available: pdf(313.71 KB)   Additional Information: full citation, abstract, references, citings, index
terms

So far, research on mobile ad hoc networks has been forcused primarily on routing issues.
Security, on the other hand, has been given a lower priority. This paper provides an
overview of security problems for mobile ad hoc networks, distinguishing the threats on
basic mechanisms and on security mechanisms. It then describes our solution to protect the
security mechanisms. The original features of this solution include that (i) it is fully
decentralized and (ii) all nodes are assigned equivalent ...

47 Papers: Wireless data communications using DECT air interface
António Muchaxo, Alexandre Sousa, Nuno Pereira, Helena Sarmento
April 1999 **ACM SIGCOMM Computer Communication Review**, Volume 29 Issue 2

Full text available: pdf(1.25 MB)   Additional Information: full citation, abstract, references, citings

DECT is an approved ETSI standard for cordless communications, defined as a general radio
access technology that can be used as the air interface to any network. In addition to the
well-established voice service, it supports data communications. DECT currently addresses
low bit rates, but additional modulation options have recently been included for high-speed,
up to 2Mbps. In this paper, we describe the hardware and software design of an entire
wireless communications system to be used in SOHO ...

48 Challenges in integrated CMOS transceivers for short distance wireless
Khurram Muhammad, Robert B. Straszewski, Poras T. Balsara
March 2001 **Proceedings of the 11th Great Lakes symposium on VLSI**

Full text available: pdf(797.97 KB)   Additional Information: full citation, references, index terms

49 Wireless monitoring and denial of service: Channel surfing and spatial retreats:
defenses against wireless denial of service
Wenyuan Xu, Timothy Wood, Wade Trappe, Yanyong Zhang
October 2004 **Proceedings of the 2004 ACM workshop on Wireless security**

Full text available: pdf(327.10 KB)   Additional Information: full citation, abstract, references, index terms

Wireless networks are built upon a shared medium that makes it easy for adversaries to
launch denial of service (DoS) attacks. One form of denial of service is targeted at
preventing sources from communicating. These attacks can be easily accomplished by an
adversary by either bypassing MAC-layer protocols, or emitting a radio signal targeted at
jamming a particular channel. In this paper we present two strategies that may be
employed by wireless devices to evade a MAC/PHY-layer jamming-style wi ...

Keywords: CSMA, Jamming, denial of service

50 Emerging mobile and wireless networks

Upkar Varshney, Ron Vetter

June 2000 **Communications of the ACM**, Volume 43 Issue 6

Full text available: pdf(609.43 KB)
html(36.15 KB)   Additional Information: full citation, references, citings, index terms, review

51 Intelligent handoff for mobile wireless internet

Jon Chung-Shien Wu, Chieh-Wen Cheng, Gin-Kou Ma, Nen-Fu Huang

January 2001 **Mobile Networks and Applications**, Volume 6 Issue 1

Full text available: pdf(223.56 KB)   Additional Information: full citation, references, citings, index terms

Keywords: mobile internet, wireless data networks, wireless internet

52 Data dissemination and pervasive computing: Power-efficient data dissemination in wireless sensor networks

Ugur Cetintemel, Andrew Flinders, Ye Sun

September 2003 **Proceedings of the 3rd ACM international workshop on Data engineering for wireless and mobile access**

Full text available: pdf(190.33 KB)   Additional Information: full citation, abstract, references, index terms

This paper presents a new event-based communication model for wireless multi-hop networks of energy-constrained devices such as sensor networks. The network is arranged as an event dissemination tree, with nodes subscribing to the event types they are interested in. An event scheduler dynamically allocates and multiplexes upstream and downstream time slots for each event type. Power consumption among wireless nodes is reduced by allowing each node to power down its radio during the portions of t ...

Keywords: publish/subscribe, scheduling, sensor networks, topology management, wireless networks

53 From snark to park: lessons learnt moving pervasive experiences from indoors to outdoors

Eric Harris, Geraldine Fitzpatrick, Yvonne Rogers, Sara Price, Ted Phelps, Cliff Randell

January 2004 **Proceedings of the fifth conference on Australasian user interface - Volume 28**

Full text available: pdf(559.90 KB)   Additional Information: full citation, abstract, references

Pervasive technologies are increasingly being developed and used outdoors in different and innovative ways. However, designing user experiences for outdoor environments presents many different and unforeseen challenges compared with indoor settings. We report on two different projects, one held indoors and one held outdoors, that were created to explore the use of various tangible technologies and pervasive environments for extending current forms of interaction, play and learning for children. ...

Keywords: novel user experiences, outdoor applications, pervasive environment design, play and learning, wireless networking

54 Summaries of MobiHoc 2003 posters: Low-power DoS attacks in data wireless LANs

and countermeasures
Guevara Noubir, Guolong Lin
July 2003 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 7
Issue 3
Full text available: pdf(190.98 KB)   Additional Information: full citation, abstract

In this paper we investigate the resiliency to jamming of data protocols, such as IP, over WLAN. We show that, on existing WLAN, an adversary can successfully jam data packets at a very low energy cost. Such attacks allow a set of adversary nodes disseminated over an area to prevent communication, partition an ad hoc network, or force packets to be routed over adversary chosen paths. The ratio of the jamming pulses duration to the transmission duration can be as low as 10--4. We investigate and ...

55 A real time transport scheme for wireless multimedia communications
Jon Chiung-Shien Wu
November 2001 **Mobile Networks and Applications**, Volume 6 Issue 6

Full text available: pdf(251.46 KB)   Additional Information: full citation, abstract, references, index terms

In wireless communications systems, a mobile station is typically equipped with limited processing capability and buffer space for transmitting and receiving. The radio link is usually found to be noisy and its propagation delay is sometimes non-negligible as compared with the packet transmission delay. And because of the necessity of flow control and packet retransmission upon error, the delay and throughput performance cannot satisfy the need of a particular traffic type, i.e., real-time multi ...

Keywords: ARQ, error correction protocol, link control protocol, wireless communication protocol

56 Issues in wireless E-commerce
Peter Tarasewich, Merrill Warkentin
June 2000 **ACM SIGecom Exchanges**, Volume 1 Issue 1

Full text available: pdf(111.43 KB)   Additional Information: full citation, abstract, references, citings, index terms

Mobile and wireless technologies continue to advance in terms of their capabilities and sophistication. There has been increasing emphasis on using these technologies as part of electronic commerce systems. But with this shift from wired to wireless e-commerce (also known as m-commerce) comes a new set of issues that needs to be evaluated. This paper explores some of the relevant technologies, applications, and issues in wireless e-commerce.

Keywords: WAP, WML, m-commerce, wireless e-commerce

57 Defending wireless infrastructure against the challenge of DDoS attacks
Xianjun Geng, Yun Huang, Andrew B. Whinston
June 2002 **Mobile Networks and Applications**, Volume 7 Issue 3

Full text available: pdf(313.57 KB)   Additional Information: full citation, abstract, references, citings, index terms

This paper addresses possible Distributed Denial-of-Service (DDoS) attacks toward the wireless Internet including the Wireless Extended Internet, the Wireless Portal Network, and the Wireless Ad Hoc network. We propose a conceptual model for defending against DDoS attacks on the wireless Internet, which incorporates both cooperative technological solutions and economic incentive mechanisms built on usage-based fees. Cost-effectiveness is also addressed through an illustrative implementation sche ...

Keywords: DDoS attack, PBN, wireless ad hoc network, wireless extended internet, wireless infrastructure, wireless portal network

58 Location-awareness and interworking: Extracting places from traces of locations
Jong Hee Kang, William Welbourne, Benjamin Stewart, Gaetano Borriello
October 2004 **Proceedings of the 2nd ACM international workshop on Wireless mobile applications and services on WLAN hotspots**
Full text available: pdf(961.76 KB)   Additional Information: full citation, abstract, references, index terms

Location-aware systems are proliferating on a variety of platforms from laptops to cell phones. Locations are expressed in two principal ways: coordinates and landmarks. However, users are often more interested in "places" rather than locations. A place is a locale that is important to an individual user and carries important semantic meanings such as being a place where one works, lives, plays, meets socially with others, etc. Our devices can make more intelligent decisions on how to behave ...

Keywords: WiFi hotspots, clustering, location-aware system

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1 <u>Training a wireless sensor network</u>   ◼
A. Wadaa, S. Olariu, L. Wilson, M. Eltoweissy, K. Jones
February 2005 **Mobile Networks and Applications**, Volume 10 Issue 1-2
Full text available: 📄 <u>pdf(487.16 KB)</u>   Additional Information: <u>full citation, abstract, references, index terms</u>

The networks considered in this paper consist of tiny energy-constrained commodity sensors massively deployed, along with one or more sink nodes providing interface to the outside world. Our contribution is to propose a scalable energy-efficient training protocol for nodes that are initially anonymous, asynchronous and unaware of their location. Our training protocol imposes a flexible and intuitive coordinate system onto the deployment area and partitions the anonymous nodes into clusters where ...

Keywords: clustering, dynamic coordinate system, energy-efficient protocols, security, self-organization, training, wireless sensor networks

2 <u>Ubiquitous computing/security: Towards a new paradigm for securing wireless sensor</u>   ▨
<u>networks</u>
K. Jones, A. Wadaa, S. Olariu, L. Wilson, M. Eltoweissy
August 2003 **Proceedings of the 2003 workshop on New security paradigms**
Full text available: 📄 <u>pdf(718.31 KB)</u>   Additional Information: <u>full citation, abstract, references</u>

The network model assumed in this paper consists of tiny, energy-constrained, commodity sensors massively deployed alongside with one or more sink nodes that provide the interface to the outside world. The sensors in the network are initially anonymous and unaware of their location. Our main contribution is to propose a new robust and energy-efficient solution for secure operation of wireless sensor networks. The paper motivates a new paradigm where security is based upon using parameterized fre ...

Keywords: energy-efficient protocols, frequency hopping, security, wireless sensor networks

3 <u>An analysis of database workload performance on simultaneous multithreaded</u>   ▨
<u>processors</u>
Jack L. Lo, Luiz André Barroso, Susan J. Eggers, Kourosh Gharachorloo, Henry M. Levy, Sujay S. Parekh
April 1998 **ACM SIGARCH Computer Architecture News , Proceedings of the 25th annual international symposium on Computer architecture**, Volume 26 Issue 3
Full text available: 📄 <u>pdf(1.57 MB)</u> 📑 Additional Information: <u>full citation, abstract, references, citings, index terms</u>

Simultaneous multithreading (SMT) is an architectural technique in which the processor issues multiple instructions from multiple threads each cycle. While SMT has been shown to be effective on scientific workloads, its performance on database systems is still an open question. In particular, database systems have poor cache performance, and the addition of multithreading has the potential to exacerbate cache conflicts.This paper examines database performance on SMT processors using traces of th ...

4 A bluetooth based sensor network for civil infrastructure health monitoring

Vipin Mehta, Magda El Zarki

July 2004 **Wireless Networks**, Volume 10 Issue 4

Full text available: pdf(307.57 KB)   Additional Information: full citation, abstract, references, index terms

Communicating with sensors has long been limited either to wired connections or to proprietary wireless communication protocols. Using a ubiquitous and inexpensive wireless communication technology to create Sensor Area Networks (SANs) will accelerate the extensive deployment of sensor technology. Bluetooth, an emerging, worldwide standard for inexpensive, local wireless communication is a viable choice for SANs because of its inherent support for some of the important requirements-low power, sm ...

Keywords: bluetooth, link strength, load balancing, power consumption, scatternet, scheduling, simulated annealing, timing accuracy, topology design

5 Global illumination using local linear density estimation

Bruce Walter, Philip M. Hubbard, Peter Shirley, Donald P. Greenberg

July 1997 **ACM Transactions on Graphics (TOG)**, Volume 16 Issue 3

Full text available: pdf(22.31 MB)   Additional Information: full citation, abstract, references, citings, index terms

This article presents the density estimation framework for generating view-independent global illumination solutions. It works by probabilistically simulating the light flow in an environment with light particles that trace random walks origination at luminaires and then using statistical density estimation techniques to reconstruct the lighting on each surface. By splitting the computation into separate transport and reconstruction stages, we gain many advantages including reduced memory u ...

Keywords: decimation, density estimation, particle tracing, realistic image synthesis, regression

6 A new approach to channel access scheduling for Ad Hoc networks

Lichun Bao, J. J. Garcia-Luna-Aceves

July 2001 **Proceedings of the 7th annual international conference on Mobile computing and networking**

Full text available: pdf(393.85 KB)   Additional Information: full citation, abstract, references, citings, index terms

Three types of collision-free channel access protocols for ad hoc networks are presented. These protocols are derived from a novel approach to contention resolution that allows each node to elect deterministically one or multiple winners for channel access in a given contention context (e.g., a time slot), given the identifiers of its neighbors one and two hops away. The new protocols are shown to be fair and capable of achieving maximum utilization of the channel bandwidth. The delay and thr ...

7 Embedded computation meets the World Wide Web

Gaetano Borriello, Roy Want

May 2000 **Communications of the ACM**, Volume 43 Issue 5

Full text available: pdf(456.09 KB)

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Terms used **security** **bluetooth** **hopping** **sequence**   Found **11** of **151,219**

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1 **Bluetooth: Performance of a new Bluetooth scatternet formation protocol**   ◼
Ching Law, Amar K. Mehta, Kai-Yeung Siu
October 2001 **Proceedings of the 2nd ACM international symposium on Mobile ad hoc networking & computing**

Full text available: 📄 pdf(1.50 MB)   Additional Information: full citation, abstract, references, citings, index terms

A Bluetooth ad hoc network can be formed by interconnecting piconets into scatternets. The constraints and properties of Bluetooth scatternets present special challegnes in forming an ad hoc network efficiently. In this paper, we evaluate the performance of a new randomized distributed Bluetooth scatternet formation protocol. Our simulations validate the theoretical results that our scatternet formation protocol runs in $O(\log n)$ time and sends $O(n)$ messages. The scatt ...

Keywords: Bluetooth, ad hoc networks, resource discovery, topology construction

2 **An ns-based Bluetooth Topology Construction Simulation Environment**   ◼
Chia-Jui Hsu, Yuh-Jzer Joung
March 2003 **Proceedings of the 36th annual symposium on Simulation**

Full text available: 📄 pdf(470.02 KB)   Additional Information: full citation, abstract, index terms
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Bluetooth is an emerging technology in wireless applications,and many related issues are yet to be explored bothin academia and industry. Because of the complexity andthe dynamics of computer networks, a good simulation toolplays an important role in the development stage. Of the existingsimulation tools, ns is a popular, open-source packagethat has a substantial support for simulation of TCP,routing, and multicast protocols over wired and wirelessnetworks. It also has BlueHoc as its extension f ...

3 **An empirical study of Bluetooth performance**   ◼
Guillermo A. Francia, Aditya Kilaru, Le Phuong, Mehul Vashi
April 2004 **Proceedings of the 2nd annual conference on Mid-south college computing**

Full text available: 📄 pdf(246.17 KB)   Additional Information: full citation, abstract, references

The Bluetooth technology was developed with the ultimate goal of replacing the conventional networking cable between devices. Since its inception in 1998, it has rapidly developed and adopted by influential technology innovators and prominent corporations. Most notable deployment of Bluetooth technology can be found in printers, digital cameras, cell phones, and computers of various types. The purpose of this work is to perform an empirical study of the performance of Bluetooth enabled networks. ...

4 Wireless home networks: A review on wireless home network technologies
K. Vaxevanakis, Th. Zahariadis, N. Vogiatzis
April 2003 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 7
   Issue 2
Full text available: pdf(1.63 MB)   Additional Information: full citation, abstract, references

Connecting residences to broadband access networks offers an unprecedented opportunity
to extend the networking customer base beyond the satiated corporate environment. Yet
despite this promising prospect, the market is evolving very tenuously: on one hand, there
are numerous industrial consortia and standardization bodies that continue their work on
independent and often non-interoperable specifications for residential networks; on the
other hand, while there are multiple home PCs and multimedi ...

5 Emerging technologies: WLANs and WPANs: On the application of traffic engineering
over bluetooth ad hoc networks
Sachin Abhyankar, Rishi Toshiwal, Carlos Cordeiro, Dharma Agrawal
September 2003 **Proceedings of the 6th ACM international workshop on Modeling
               analysis and simulation of wireless and mobile systems**
Full text available: pdf(420.12 KB)   Additional Information: full citation, abstract, references, index terms

The seamless communication of data and voice over short-range, point-to-multipoint
wireless links between mobile and/or stationary devices is becoming a reality by newly
introduced Bluetooth radio technology for Wireless Personal Area Networking, which can
support only up to 1 Mbps of nominal bandwidth. It is based on a master-slave model where
double the resources are allocated for any slave-to-slave communication via the master. In
addition, it does not have any mechanism to serve demands exce ...

Keywords: bluetooth, performance evaluation, piconet partitioning, role switching, traffic
engineering

6 Papers from MC^{2}R open call: Inquiry packet interference in bluetooth scatternets
Brian S. Peterson, Rusty O. Baldwin, Richard A. Raines
April 2004 **ACM SIGMOBILE Mobile Computing and Communications Review**, Volume 8
   Issue 2
Full text available: pdf(322.94 KB)   Additional Information: full citation, abstract, references

The key to successfully establishing and maintaining a Bluetooth scatternet is the inquiry
procedure which discovers Bluetooth devices within range. The inquiry procedure uses a
subset of the hop frequencies used by a piconet. While nodes in a scatternet are in the
inquiry substate, they can cause significant interference to the neighboring piconets. Nodes
seeking to join a piconet cause significant interference to those neighboring piconets
attempting normal communication in the connection mode ...

7 Mobile applications: Bluetooth and WAP push based location-aware mobile advertising
system
Lauri Aalto, Nicklas Göthlin, Jani Korhonen, Timo Ojala
June 2004 **Proceedings of the 2nd international conference on Mobile systems,
           applications, and services**
Full text available: pdf(469.83 KB)   Additional Information: full citation, abstract, references, index terms

Advertising on mobile devices has large potential due to the very personal and intimate
nature of the devices and high targeting possibilities. We introduce a novel B-MAD system
for delivering permission-based location-aware mobile advertisements to mobile phones
using Bluetooth positioning and Wireless Application Protocol (WAP) Push. We present a
thorough quantitative evaluation of the system in a laboratory environment and qualitative
user evaluation in form of a field trial in the real envir ...

Keywords: Bluetooth positioning, context-aware, location-aware, location-based services,

mobile advertising, wireless advertising

8 <u>Comparative performance evaluation of scatternet formation protocols for networks of</u> <u>bluetooth devices</u>
Stefano Basagni, Raffaele Bruno, Gabriele Mambrini, Chiara Petrioli
March 2004 **Wireless Networks**, Volume 10 Issue 2

Full text available: 📄 <u>pdf(375.40 KB)</u>   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>, <u>review</u>

This paper describes the results of the first ns2-based comparative performance evaluation among four major solutions presented in the literature for forming multi-hop networks of Bluetooth devices (*scatternet formation*). The four protocols considered in this paper are *BlueTrees* [1], *BlueStars* [2], *BlueNet* [3] and the protocol presented in [4] which proposes geometric techniques for topology reduction combined with cluster-based scatternet formation. We implemented th ...

Keywords: bluetooth, performance evaluation, scatternet formation, wireless networks

9 <u>Wireless monitoring and denial of service: Channel surfing and spatial retreats:</u> <u>defenses against wireless denial of service</u>
Wenyuan Xu, Timothy Wood, Wade Trappe, Yanyong Zhang
October 2004 **Proceedings of the 2004 ACM workshop on Wireless security**

Full text available: 📄 <u>pdf(327.10 KB)</u>   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>

Wireless networks are built upon a shared medium that makes it easy for adversaries to launch denial of service (DoS) attacks. One form of denial of service is targeted at preventing sources from communicating. These attacks can be easily accomplished by an adversary by either bypassing MAC-layer protocols, or emitting a radio signal targeted at jamming a particular channel. In this paper we present two strategies that may be employed by wireless devices to evade a MAC/PHY-layer jamming-style wi ...

Keywords: CSMA, Jamming, denial of service

10 <u>Emerging mobile and wireless networks</u>
Upkar Varshney, Ron Vetter
June 2000 **Communications of the ACM**, Volume 43 Issue 6

Full text available: 📄 <u>pdf(609.43 KB)</u>
📄 <u>html(36.15 KB)</u>   Additional Information: <u>full citation</u>, <u>references</u>, <u>citings</u>, <u>index terms</u>, <u>review</u>

11 <u>Papers: Wireless data communications using DECT air interface</u>
António Muchaxo, Alexandre Sousa, Nuno Pereira, Helena Sarmento
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DECT is an approved ETSI standard for cordless communications, defined as a general radio access technology that can be used as the air interface to any network. In addition to the well-established voice service, it supports data communications. DECT currently addresses low bit rates, but additional modulation options have recently been included for high-speed, up to 2Mbps. In this paper, we describe the hardware and software design of an entire wireless communications system to be used in SOHO ...

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